

NEW SPECIES OF ORIBATIDS FROM WESTERN COLORADO
(ACARINA: CRYPTOSTIGMATA, SUCTOBELBIDAE)

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ABSTRACT.— A new species of *Suctobelba*, *S. tumulata*, and a new genus and species, *Parisuctobelba septenia*, are described from collections of oribatids taken in coal strip-mining spoil banks near Hayden, Colorado. The new species are compared with members of the family from North America and Europe. The new genus is differentiated by a smooth, narrowed sensillum and seven pairs of genital setae. Taxonomic and ecological data are also discussed.

Studies of oribatid mites taken from spoil banks in the Yampa Valley yielded some interesting forms not previously described in the literature. Among these representatives are two new mites in the family Suctobelbidae; one is a new genus and species, the other a new species of the genus *Suctobelba*.

In a review of the literature of the family Suctobelbidae, we noted that one of the most recent citations concerning the North American forms of this family is the work of Jacot (1937). In Europe, Forsslund (1941) reviewed the Swedish species; Strenske (1951, 1955, 1963) summarized the north German species; and Willmann (1953) described a new genus. The later work of Moritz (1970a, 1970b, 1970c) involves revisional material on the genus *Suctobelba*, including a review of the type of the genus, *Suctobelba trigona* (Michael) Paoli, 1908, *Suctobelbilla* (1974), and *Suctobelbella* (1970c). Balogh (1968) described a new species of *Suctobelbilla* from New Guinea; Balogh and Mahunka (1974) described a new species of *Suctobelbilla* from Cuba.

Comparisons of the new species of *Suctobelba* with examples referred to in the above literature show that the new species differs in its larger size and morphology from species collected by Jacot (1937) in the United States and by Hammer (1952, 1955) in Canada and Alaska. This new species is also different from those European species reviewed by Moritz (1970a) as well as Milhelcic (1956), and from the Japanese species described by Aoki (1961).

The new species of *Suctobelba* resembles most closely the European type, *Suctobelba trigona* (Michael) Paoli, 1908, and *S. punctata* Hammer, 1955. The major dif-

ferences are indicated in the diagnostic characteristics included below with the species description.

Suctobelba tumulata, n. sp.

Figs. 1, 2

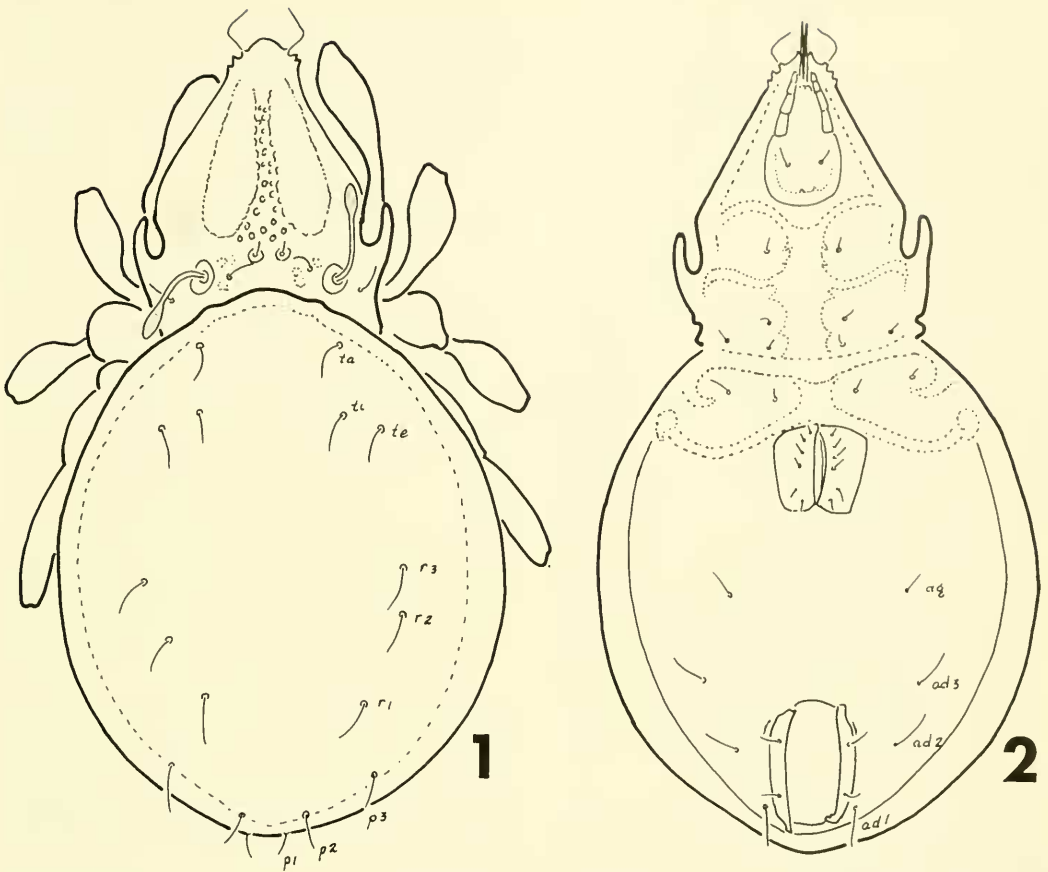
DIAGNOSIS: The new species has the general appearance of the type of genus *Suctobelba trigona*, with a similar prodorsum, sensillum, and anterior border of the notogaster. It differs in the presence of two anterolateral rostral teeth compared to the single anterolateral tooth separated from the rostrum by a deep incision as shown by Strenske (1951) for the type of the genus. The sensillum of the new species is less clavate and less curved than the sensillum of the type or *S. punctata* Hammer (1955); the prodorsal and notogastral hairs are smaller than in either of these species. Other minor features useful in diagnosis are indicated in the following description.

The trivial name, *tumulata*, is taken from the Latin *tumulus*, which means a raised mound of earth or a hillock. The name is intended to imply ecological location inasmuch as the new species was taken from spoil banks caused by coal strip-mining.

DESCRIPTION: Color yellowish brown; prodorsum triangular, narrowed anteriorly, rostrum with two anterolateral teeth, rostral hairs elbowed, finely barbed, inserted in raised tubercles at anterolateral margin of rostrum; mid-prodorsal fields elongated similar to type of genus, mid-region of prodorsum with fine tubercles; lamellar hairs fine, short, about as long as width of raised tubercles from which they arise; interlamellar hairs twice as long as lamellar hairs, inserted mediad

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Figs. 1-2. *Suctobelba tumulata*, n. sp.: 1, dorsal aspect, legs partially omitted; 2, ventral aspect.

of pseudostigmata about half their lengths; sensillum clavate, head narrowed distally, finely barbed at tip.

Notogaster rounded in outline, anterior margin with slight anterior prominences, but lacking sclerotized projections common to other species of the genus; nine pairs of notogastral setae as seen in Fig. 1 (reduced number over most species of the genus observed); surface of notogaster smooth, glabrous.

Camerostome elongated, chelicerae attenuated as in other species of the genus and family; palps, ventral setae, and apodemes as seen in Fig. 2; genital aperture two-and-one-half times its length anterior to anal opening; each genital cover with six setae, anterior four setae close to medial margin and in anterior half of cover, posterior two setae set some-

what diagonally in mesial posterior end of cover; aggenital setae remote from genital aperture by three times their lengths, about midway between genital and anal apertures; anal aperture about one quarter larger than genital, each anal cover with two setae; adanal setae twice as long as aggenital, ad_3 , ad_2 inserted remote from anal opening, ad_1 close to posterior margin of both anal cover and venter; fissure *iad* near anterolateral margin of anal aperture.

Size: $300\mu \times 174\mu$.

Legs: monodactylous.

Two female specimens were collected at Wolf Creek near Hayden, Colorado, by Harold G. Higgins and Tyler A. Woolley, 8 June 1971, from serviceberry and grass. The type will be deposited in the U.S. National Museum.

Parisuctobelba septenia, n. gen., n. sp.

Figs. 3, 4

DIAGNOSIS: The distinguishing characteristics of the new genus and species are the smooth, parallel-sided sensillum and the seven pairs of genital setae; 10 pairs of notogastral hairs; anterolateral rostral teeth and the absence of anterior notogastral projections are also notable, but may show similarities to other genera and species in the Suctobelbidae. Although larger than *Suctobelba trigona* (Michael) Paoli, 1908, the new genus and species is most similar to *Suctobelba gigantea* Hammer, 1955, in size and type of sensillum, which lacks the distal brush shown by Hammer for the Alaskan species; it differs markedly in the seven pairs of genital setae and the number and size of rostral teeth.

The generic name is derived from the Latin *paris*, and, applied to the stem term, refers to the parallel sides of the sensillum; the trivial name of the species comes from the Latin *septeni*, and refers to the "seven each" genital hairs on the genital covers, both distinctive features for the new genus and species. A single gravid female was found under a serviceberry and is described below.

DESCRIPTION: Color yellowish brown; prodorsum triangular in outline, with three small rostral teeth on anterolateral margins; rostral hairs elbowed, finely barbed, inserted in squarish tubercles on surface of rostrum at level of anterior rostral teeth; surface of prodorsum punctulate, with two sizes of pits, mesal fields of prodorsum with larger pits than posterior, lateral areas, sclerotized ridges extending from insertion of rostral hairs posteriorly to level of lamellar hairs, arched laterally around mesal fields, arches more highly sclerotized and prominent, rugose, punctulate, arched laterally; lamellar hairs about half as long as sensillum, simple, inserted in prominent larger tubercles between posterior ends of sculptured arches; interlamellar hairs shorter than lamellar, about as long as distance between each other, curved medially, inserted in sculptured plate between pseudostigmata; pseudostigmata rounded, with raised margins; sensillum elongated, with parallel sides and of similar width throughout length, pedicel smooth throughout most of length, finely barbed

at distal tip; exobothridial hairs simple, nearly as long as interlamellar hairs, inserted near posterolateral margin of pseudostigmata; pseudostigmata laterad of curved ridges extending from insertions of interlamellar hairs to near anterior margin of notogaster.

Notogaster oval in outline, with 10 pairs of notogastral setae as seen in Fig. 3; setae simple; fissure *im* near setae *ms*.

Camerostome aboval in outline with elongated anterior end; chelicerae appear attenuated as in other species in family; ventral setae as in Fig. 4; apodemata IV arched anteriorly to forward edge of genital aperture; genital aperture about three times its length anterior to anal opening, about one-third smaller than anal opening; each genital cover with seven setae; setae g-1 to g-5 near mesal margin of cover; setae g-6, g-7 diagonally placed in posterolateral aspects of cover; each anal cover with two setae; aggenital, adanal setae and fissure *iad* as in Fig. 4.

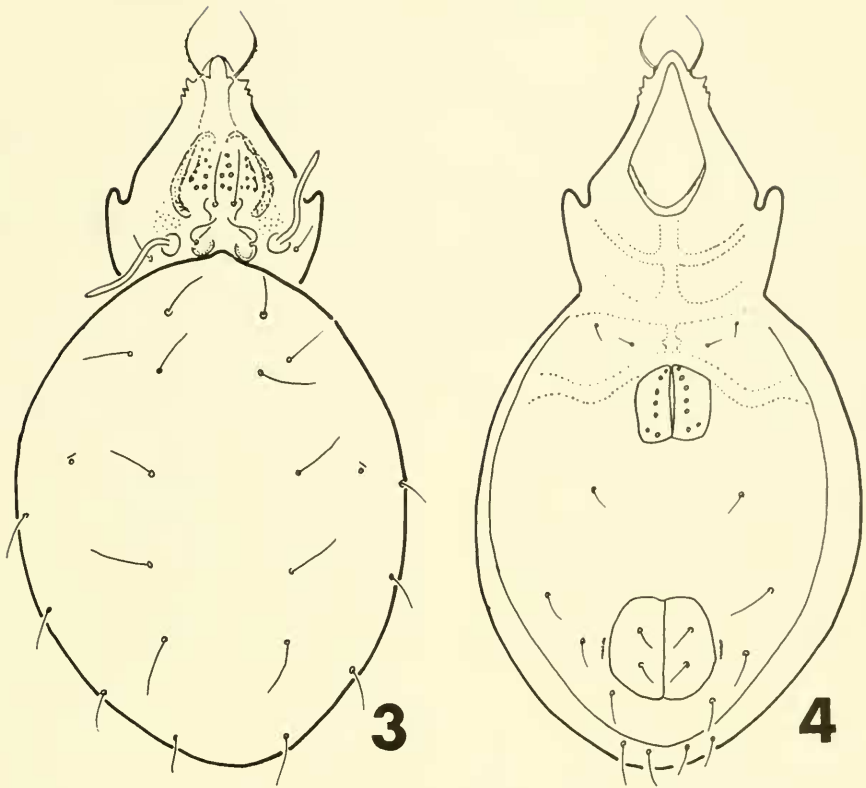
Measurements: 552 μ long x 300 μ wide.

Legs: monodactylous.

A single, gravid female was taken beneath a serviceberry near Wolf Creek, near Hayden, Colorado, 8 June 1971, by Harold G. Higgins and Tyler A. Woolley. The type specimen will be deposited in the U.S. National Museum.

DISCUSSION: Both of the new species described in this paper were collected at the edge of a spoil bank formed as a result of coal strip-mining near Hayden, Colorado. Their discovery necessitated a fairly extensive review of the literature on described species within the family Suctobelbidae. Because of this search, we came to the conclusion that some confusion exists as to the characteristics that separate the genera of the Suctobelbidae (e.g., Balogh 1972, Moritz 1970a). Of the 12 genera currently assigned to the family, there at least six genera with characters that overlap. We compared anterior notogastral projections, notogastral setae, sensilla, rostral setae, and teeth. Descriptions are inconsistent for decisive generic characters, sometimes within the same article. We had hoped to include a key to the genera as a part of this paper, but we will have to do further comparisons to complete that intention.

It appears to us that many of the species of mites assigned to the genus *Sucto-*



Figs. 3-4. *Parisuctobelba septenia*, n. gen., n. sp.: 3, dorsal aspect legs omitted; 4, ventral aspect.

belba belong in the genera *Suctobelbila* and *Suctobelbella*, but incomplete descriptions and lack of broadly comparative information cause difficulties in determinations. The genus *Suctobelba* is characterized by anterior notogastral projections, yet these are apparently lacking on the type genus and species. Usually a sensillum with a greatly enlarged, clavate, curved head and 10 pairs of notogastral setae are also characteristic, but discrepancies regarding these features were also found. We intend to make a careful analysis of the differentiating features of the genera and species of this family to determine limits and key features of the members of Suctobelbidae.

We have observed from descriptions in the literature that there are disparities between *Fenestrobelba*, *Zeasuctobelba*, and the three genera mentioned above. Identification and comparisons are difficult with the existing state of the taxonomy in this family, but we feel justified in establishing the new genus and species

described in the paper because it does not fit in any established genus nor with any other type we have seen or read about.

Reference was made to the collection site near Hayden, Colorado. Although other collections than the ones mentioned above were made in the same area at subsequent times, no additional specimens were obtained. We have assumed that the absence of these two new species may have been due to a seasonal fluctuation, with populations of these species on the wane, or that environmental moisture or other physical factors changed the population density during the later collections. The approaching summer temperature may have affected the populations. This type of experience where specimens are collected at one time and not at another has been noted for other species and over a longer time span. In another paper we shall discuss additional ecological observations on oribatids in connection with these studies of the spoil banks and eval-

uate some of the circumstances that contribute to species distribution in that area during the time of the study.

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